# Appendix F ñ Special Status Plant and Wildlife Species

Special status species include Federally listed (endangered or threatened), proposed, and candidate species, and designated or proposed critical habitat; species of concern managed under Conservation Agreements or Management Plans; state-listed species; and BLM-sensitive species. Several special status species occurring within the management areas of the BLM Field Offices in Arizona are discussed in the LUPs referenced at the beginning of Section 3.0, and are incorporated here by reference. However, additional species and critical habitats have been added to or have changed Federal status under the Endangered Species Act since the time these plans were written. Brief descriptions of each of the Federally listed, proposed, and candidate species, as well as the Conservation Agreement and Management Plan species, are provided below. Information on these species was consolidated from a variety of sources, most notably, the U.S. Fish and Wildlife Service (USFWS), Arizona Ecological Services website (http://www.arizonaes.fws.gov), and the Arizona Game and Fish Departmentís (AGFD) Heritage Data Management System (HDMS). HDMS provided lists, shape files, and habitat and general location information for special status species generated by the HDMS Coordinator, as well as unpublished abstracts created by AGFD (http://www.gf.state.az.us/wildlife_conservation/edits/hdms_abstracts.html). Personal communications with the HDMS Coordinator and species experts from state and federal agencies provided additional species information.

**AMPHIBIANS**

Federally protected amphibian species in Arizona that may be affected by the proposed project include one threatened frog species and one candidate frog species. Threats to amphibians include predation by introduced bullfrogs and non-native fish, disease, habitat fragmentation or destruction, water manipulations, and water quality degradation. These species frequently have an increased probability of local extirpation because of their small, often isolated, populations.

**Chiricahua leopard frog (*Rana chiricahuensis*)**
This **threatened** species has two forms in Arizona: the Southern form, found in southeastern Arizona, portions of southwestern New Mexico, and a portion of Mexico; and the Rim form, a disjunct population occurring along the southern edge of the Colroado Plateau and headwater drainages in the White Mountains and along the Mogollon Rim in Arizona. The range of the Rim form extends from montane central Arizona east and south along the Mogollon Rim to montane parts of west-southwestern New Mexico, at elevations ranging from 3500-8040 ft amsl (Apache, Coconino, Gila, Graham, Greenlee, Navajo, and Yavapai Counties, AZ). The range of the southern form extends through the southeastern montane sector of Arizona and adjacent Sonora, Mexico, at elevations ranging from 1219-4023 ft amsl (Santa Cruz and Cochise Counties, AZ). Only the southern form of the species occurs on or downstream from BLM-administered lands. This species requires permanent water sources, including streams, rivers, backwaters, ponds, and stock tanks that are mostly free from introduced fish, crayfish, and bullfrogs. The primary habitat type of *R. chiricahuensis* is oak, mixed oak and pine woodlands, although its habitat ranges into areas of chaparral, grassland, and desert.

**Relict leopard frog (*Rana onca*)**
In Arizona, this **candidate** species is restricted to a spring-fed wetland adjacent to the Virgin River near Littlefield, AZ (Mohave County). At this time no relict leopard frogs occur on BLM-administered lands within the action area. The site occupied by the Virgin River population occurs on private land. The species typically inhabits permanent streams, springs, seeps, spring-fed wetlands, and edges of marshes and pools below 2000 ft amsl. Threats to the species include elimination or dramatic alteration of aquatic habitats from human activities or development, and the spread of predator and nonnative bullfrogs, crayfish, and predaceous fishes.

**BIRDS**

The Federally listed, proposed, and candidate birds in Arizona considered for the Statewide LUP Amendment totals 10 species. The list is dominated by five raptor species and four riparian-obligate species. These species have experienced a variety of threats, primarily habitat loss or fragmentation from urbanization, agricultural expansion, or damming of rivers (affecting native riparian habitats). Past use of pesticides and illegal hunting have also contributed to declines in many of the raptors.

**Cactus ferruginous pygmy-owl (*Glaucidium brasilianum cactorum*)**
The range of this **endangered** species in Arizona is limited to the New River (north) to the Gila Box (east) to the Cabeza Prieta Mountains (west) in Maricopa, Pima, Pinal, Santa Cruz, and Yuma Counties. **Proposed critical habitat** for this species occurs in Pima and Pinal Counties. The species typically inhabits mature cottonwood/willow woodlands or mesquite bosques, usually with saguaros on nearby slopes, in the Arizona Upland Subdivision and Sonoran desert scrub, ranging in elevation from 1300-1400 ft amsl. Before 1950, this species was a fairly common resident of low elevation riparian mesquite woodlands in southern Arizona. This species has experienced drastic declines in both range and abundance and is absent in many places where it was formerly documented.

**California brown pelican (*Pelecanus occidentalis californicus*)**
This **endangered** sub-species is typically found on the Pacific Coast, but is an uncommon, non-breeding transient at many Arizona lakes and rivers. This fish-eating bird prefers large open water areas, such as near dams, marinas, or river sandbars.

**California condor (*Gymnogyps californianus*)**
This **endangered** species is designated as an **experimental, non-essential population** (10(j) species) under Section 10(j) of the Endangered Species Act. The last wild condor was reported in Arizona in 1924; however a recovery program has reintroduced condors to Northern Arizona beginning in 1996. The release site is on BLM-administered lands at the Vermillion Cliffs (Coconino County, AZ), with an **experimental, non-essential area** (10(j) area) designated in northern Arizona, extending north into Utah and Nevada. The Vermillion Cliffs are rugged sandstone cliffs located on the Paria Plateau, providing the necessary remoteness, ridges, ledges, and caves favored by condors. The Paria Plateau is typified by Great Basin Pinyon-Juniper Woodland, dominated by juniper and pinyon pine. Great Basin Desert Scrub occurs along the Vermillion Cliffs, dominated by sagebrush and rabbitbrush. Species diversity is low, with shrubs occurring more frequently than woodland or forest. Some released condors have occasionally flown to parts of Arizona outside the designated 10(j) area, however, they typically return after short periods.

**Masked bobwhite quail (*Colinus virginianus ridgewayi*)**
This **endangered** species is presently only known from reintroduced populations on Buenos Aires National Wildlife Refuge in Pima County, AZ, although it formerly occurred in Altar and Santa Cruz Valleys and Sonora, Mexico. The species inhabits desert grasslands with a diversity of dense native grasses, forbs, and brush, ranging in elevation from 300-4000 ft amsl.

**Northern aplomado falcon (*Falco femoralis septentrionalis*)**
This **endangered** species formerly nested in southeastern Arizona. There have been no recent confirmed reports of this falcon in Arizona, but it has been found nearby in western New Mexico and in Mexico. It is likely that with improved habitats, the species will return to Arizona within the next 10-20 years, potentially in Cochise, Santa Cruz, or Yuma Counties. This species inhabits grassland and savannah, particularly sites with low ground cover and mesquite or yucca for nesting platforms.

**Southwestern willow flycatcher (*Empidonax traillii extimus*)**
The distribution of this **endangered** subspecies is restricted to riparian corridors within its range, including all counties in Arizona except Navajo, at elevations less than 9200 ft amsl. The species is a riparian obligate, preferring dense canopy cover, a large volume of foliage, and surface water during midsummer. It typically inhabits cottonwood/willow thickets along rivers and streams, although with the significant loss of this native riparian vegetation, the species will also use tamarisk (*Tamarix* spp.) or Russian olive (*Eleagnus angustifolia*) thickets and riparian associates. Extreme population reductions have been noted

range-wide since the1800's, though quantitative data are lacking. Riparian habitat loss and fragmentation and brood-parasitism by brown-headed cowbirds are two major causes for the decline of this flycatcher.

**Yuma clapper rail (*Rallus longirostris yumanensis*)**
This **endangered** secretive shorebird is the only clapper rail to breed in freshwater marshes, although it also inhabits brackish water marshes and side waters. Within Arizona, the species is a locally common summer resident and breeder occupying several locations along the lower Colorado River from the Mexican border north to Littlefield, AZ on the Virgin River, including Lake Mead (Yuma, La Paz, and Mohave Counties). Clapper rails also occur along the Bill Williams River below Alamo Dam, the Gila River up to the confluence with the Salt River, protions of the Salt, Gila, and possibly lower Verde Rivers, and Picacho Reservoir (though that population may be gone)(La Paz, Maricopa, Mohave, Pinal, and Yuma Counties). The species requires wet substrate (mudflat, sandbar) with dense herbaceous (*e.g.*, cattails and bulrushes) or woody vegetation (e.g., *Tamarisk* spp.) for nesting and foraging. The interface between water, soil and vegetation seems more important than the plant species that cover the site. Most birds are found within the Lower Colorado Subdivision of the Sonoran Desert Scrub biome, ranging in elevation from 75-1700 ft amsl in Arizona. Channelization and marsh development are primary sources of habitat loss.

**Bald Eagle (*Haliaeetus leucocephalus*)**
In Arizona, some birds of this **threatened** species are nesting residents while an estimated 200-300 birds winter along rivers and reservoirs, covering all counties of Arizona except Greenlee. This species requires large trees or cliffs near water (reservoirs, rivers, and streams) with abundant prey. Illegal shooting, disturbance, and loss of habitat continue to affect this species. It has been proposed for delisting (64 CFR 36454), but still receives full protection under the Endangered Species Act.

**Mexican spotted owl (*Strix occidentalis lucida*)**
This **threatened** species is patchily distributed in forested mountains statewide. It occurs at elevations from 3000-9000 ft amsl in nearly all counties in Arizona, except La Paz and Yuma. For Arizona BLM, only the Arizona Strip and Kingman Field Offices contain suitable habitat that could potentially sustain the subspecies, although no owls have been detected on BLM-administered lands in Arizona since the early 1980ís. **Critical habitat** was designated for Apache, Cochise, Coconino, Graham, Mohave, and Pima Counties. Some critical habitat is designated on BLM-administered lands in the Arizona Strip management area, although the designated sites generally lack some of the primary constituent elements expected for the speciesí habitat. These owls nest primarily in dense older forests of mixed conifer or ponderosa pine/gambel oak type, located on steep slopes, and deep, shady ravines or canyons. Sites with cool microclimates and high canopy closure, high basal area, many snags, and many downed logs appear to be of importance. They use a variety of habitats for foraging, including multi-layered forests with many potential patches. Many of the potentially suitable forested habitats on BLM-administered lands in Arizona are not currently suitable for Mexican spotted owls because they lack or are altered from the old-growth characteristics or dense, multi-storied forest structure found in other parts of the speciesí range. Canyon habitats located on BLM-administered lands are typically considered too hot and dry to provide suitable habitat for the species.

**Yellow-billed cuckoo (*Coccyzus americanus*)**
This **candidate** species is found in all counties in Arizona except Navajo at elevations less than 6700 ft amsl. It requires large blocks of riparian woodlands (cottonwood-willow galleries or tamarisk thickets). The USFWS has found that the species warrants listing, but other, higher priority listing actions prevent the USFWS from addressing the listing of the cuckoo at this time.

**FISH**

Fish species that are Federally listed and proposed total 14 species, and many have designated or proposed critical habitat. Many of these species were formerly widespread in the river systems of Arizona, but are now restricted to isolated or reduced populations on a fraction of their former range. Threats to these species typically include man-made changes to the river systems, such as habitat fragmentation, damming, dewatering for agriculture, mining, and urbanization, and competition or predation by introduced non-native fish species.

**Bonytail chub (*Gila elegans*)**
This **endangered** species is endemic to the Colorado River Basin and is the rarest of the Colorado River fish. Population augmentation is on-going in Lake Mohave and Lake Havasu in Mohave and La Paz Counties, AZ. The species was historically found in the warm, swift, turbid mainstem rivers of the Colorado River basin, but, in Arizona, is now restricted to the two reservoirs in the lower basin. **Critical habitat** designated for this species includes the Colorado River from Hoover Dam to Parker Dam (including Lake Mohave and Lake Havasu) in Arizona.

**Desert pupfish (*Cyprinodon macularius*)**
This **endangered** species was historically found in Graham, La Paz, Maricopa, Pima, Pinal, Santa Cruz, and Yavapai Counties, AZ at elevations less than 5000 ft amsl. There are no natural populations of this species remaining in Arizona. Reintroduced populations continue to exist at only two sites, Cold Springs (Graham County) and Lousy Canyon (Yavapai County); both sites are on BLM-administered lands. Other reintroduction sites are considered failed or the fish are of questionable heritage. BLM is pursuing a series of introductions into parts of the Aravaipa system, a tributary of the San Pedro River. There are also 14 refugia populations of desert pupfish. **Critical habitat** includes Quitobaquito Springs (Pima County, Arizona), and portions of San Felipe Creek, Carrizo Wash, and Fish Creek Wash (Imperial County, California). These critical habitat segments are located upstream of BLM lands in Arizona and outside the proposed action area in California. Critical habitat designations are primarily pertinent to the Quitobaquito pupfish (*Cyprinodon eremus*), which was considered a subspecies of the desert pupfish at the time of listing. Desert pupfish typically occupy shallow waters of springs, small streams, and marshes, although it tolerates saline and warm water. Sites are often associated with areas of soft substrates and clear water.

**Gila topminnow (*Poeciliopsis occidentalis occidentalis*)**
This **endangered** species was once the most common fish in the Gila River basin. It historically occurred in most perennial springs, streams, and vegetated margins and backwaters in rivers of the Gila River drainage in Yavapai, Gila, Pinal, Maricopa, Graham, Greenlee, Cochise, Pima, Santa Cruz and Yuma Counties, AZ. Currently, disjunct populations exist in 14 natural locations and 17 re-introduced locations within the Gila River drainage and one location in the Bill Williams River drainage, outside the topminnowís natural range. Of these localities, 15 are springs and the rest are creeks and washes at elevations less than 5000 ft amsl. Many of these natural and reintroduced populations occur on or downstream from BLM-administered lands. In 1998, populations were proposed for reintroductions by BLM into three tributaries of the Agua Fria River (Yavapai County, AZ). This species prefers shallow warm water in a moderate current with dense aquatic vegetation and algae mats.

**Razorback sucker (*Xyrauchen texanus*)**
Historically, this **endangered** species was once common to many of the rivers of the Colorado River Basin, including the Colorado, Gila, Salt, Verde, and San Pedro Rivers in Arizona, at elevations less that 5000 ft amsl. Presently, as a result of impoundment of large rivers and other habitat alterations, natural adult populations exist only in Lake Mohave, Lake Mead, Lake Havasu, and Horseshoe Reservoir (Mohave, La Paz, and Maricopa Counties, AZ). **Critical habitat** for this species includes the 100-year floodplain and all reservoirs of the lower Colorado River from the confluence with Paria River, through the Grand Canyon, to Imperial Dam; the Gila River from the Arizona/New Mexico border to Coolidge Dam; Salt River from Hwy 60/SR77 Bridge to Roosevelt Dam; and Verde River from the USFS boundary to Horseshoe Reservoir. Razorback suckers use a variety of habitat types from mainstem channels to slow backwaters of medium and large streams and rivers, sometimes around cover. In impoundments, they prefer depths of $\geq$1 meter over sand, mud or gravel substrates. Due to lack of recruitment, the few isolated populations of this species remain small.

**Virgin River chub (*Gila seminuda*)**
This **endangered** species is restricted to the Virgin River in Utah, Nevada, and Arizona (Mohave County), at elevations between 1500-2500 ft amsl. It has been documented in the Moapa (Muddy) River and the mouth of Beaver Dam Wash. **Critical habitat** has been designated along the main channel of the Virgin River and its 100-year floodplain. These fish are most common in deeper areas where waters are swift, but not turbulent, and are most often associated with boulders or other types of cover. Water in the Virgin

River is generally somewhat warm, turbid, and saline. Populations of this species continue to decline due to habitat modifications, dewatering from agriculture, mining, and urbanization, and management of non-native species.

**Woundfin (*Plagopterus argentissimus*)**
This **endangered** species historically occupied the lower Colorado River basin including the Virgin, Moapa, Salt and Gila River systems. At present, the woundfin is restricted to approximately 50 miles of perennial reaches of the Virgin River in the states of Utah, Arizona, and Nevada. It is found sporadically throughout the Arizona portion of the Virgin River mainstem in Mohave County at 1500-2500 ft amsl. The Virgin River and its 100-year floodplain have been designated as **critical habitat** for this species. **Experimental populations** (ESA Section 10(j)) have been designated, but not yet introduced, in portions of the Verde, Gila, San Francisco, and Hassayampa Rivers and Tonto Creek. Woundfin prefer the main channel of seasonally swift, highly turbid, and extremely warm, silty streams, with sandy, constantly shifting bottoms. They seemingly avoid clear waters and are very seldom found in quieter pools. Young fish seek quiet backwaters with sandy substrates. Biotic communities along the Virgin River include the Great Basin and Mohave Desert Scrub; the riparian community consists primarily of *Tamarix* spp. Historical habitat has been lost by habitat fragmentation, introduction of nonnative species, and dewatering due to agriculture, mining and urbanization. Damming and drying have caused the disappearance of the woundfin throughout most of its historic range and continue to impact it in the Virgin River.

**Yaqui chub (*Gila purpurea*)**
This **endangered** species is currently restricted to the San Bernardino and Leslie Canyon National Wildlife Refuges (NWR) (3700-4600 ft amsl), in Cochise County, AZ. **Critical habitat** has been designated on all aquatic habitats of the main portion of the San Bernardino NWR. The San Bernardino NWR is down-slope from a small area (1 square mile) of BLM-administered lands located in the upper part of the drainage approximately 7 miles east of the refuge. Leslie Canyon NWR occurs downslope or adjacent to small parcels of BLM-administered lands. The species occupies deeper pools of small streams near undercut banks or debris, often in association with dense aquatic vegetation, such as low, emergent aquatic plants and hydrophytic tree species (*e.g.*, willows). It is also found in swifter areas with clean, gravel bottoms and abundant growths of algae. Historically, the Yaqui chub was found in springs, cienegas, creeks, and moderately-sized rivers, which typically had alternating riffles and pools.

**Yaqui topminnow (*Poeciliopsis occidentalis sonoriensis*)**
This **endangered** species is limited to the Rio Yaqui River Basin, and, in Arizona, is restricted to the San Bernardino and Leslie Canyon NWRs in Cochise County, AZ. The San Bernardino NWR is down-slope from a small area (1 square mile) of BLM-administered lands located in the upper part of the drainage approximately 7 miles east of the refuge. Leslie Canyon NWR occurs downslope or adjacent to small parcels of BLM-administered lands. These fish occur at elevations from 3700- 4600 ft amsl in Arizona, and occupy small to moderate-sized streams, springs, and cienegas, generally in shallows.

**Beautiful (Yaqui) shiner (*Cyprinella formosa*)**
This **threatened** species was extirpated in the United States by 1970, but as of 1991, it was still found in most of its historic range in Mexico. In 1990, this fish was reintroduced into four man-made ponds on the San Bernardino NWR in Cochise County, AZ. **Critical habitat** has been designated on all aquatic habitats of the main portion of the San Bernardino NWR. The San Bernardino NWR is down-slope from a small area (1 square mile) of BLM-administered lands located in the upper part of the drainage approximately 7 miles east of the refuge. The species prefers small- to medium-sized streams and ponds with sand, gravel, and rock bottoms, with associated riparian plant communities, at elevations less than 4000 ft amsl.

**Little Colorado spinedace (*Lepidomeda vittata*)**
This **threatened** species is endemic to the Little Colorado River and its north flowing tributaries, including the Coconino, Navajo, and Apache Counties, AZ. In Arizona, four populations exist on the mainstem of the Little Colorado River, Nutrioso Creek, Clear Creek, and Chevlon Creek. One population occurring near BLM-administered lands is in Chevlon Creek, which is at least 1 mile downstream or downslope from scattered parcels (1 square mile) of public lands. Other records exist for populations on the Little Colorado River upstream from Lyman Lake near a BLM parcel adjacent to the river. Records also exist for

spinedace occurring in Silver Creek, and habitat on BLM-administered lands along this creek down to and including the confluence with the Little Colorado River would also be considered occupied. **Critical habitat** has been designated on 18 miles of East Clear Creek, eight miles of Chevlon Creek, and five miles of Nutrioso Creek. These fish are most common in slow to moderate water currents, over fine gravel bottoms, at depths of around 2 feet. It prefers unshaded pools with rocks or undercut banks for cover. Associated riparian vegetation includes *Alnus* spp. (alder), *Salix* spp. (willow), *Quercus* spp. (oak), and mixed conifer species. Populations fluctuate dramatically from year to year, and probably reflect cyclic periods of drought and/or increased rainfall. However, populations are thought to be declining due to alteration of habitat through reduced stream flow and interaction with introduced non-native fishes.

**Loach minnow (*Tiaroga cobitis*)**
This **threatened** species currently persists in Arizona only in limited reaches of Aravaipa Creek, Blue River, Campbell Blue Creek, San Francisco River, Dry Blue River, and the mainstem of the upper Gila River in Apache, Graham, Greenlee, Gila, Pinal, and Navajo Counties. Known populations once present in other rivers and streams of the state have been eliminated. **Critical habitat** was designated in April 2000, and in addition to occupied habitat, it includes habitat in the Arizona counties of Cochise, Pima, and Yavapai, which presently contain no known populations of loach minnow. This benthic fish occupies turbulent, rocky riffles of mainstream rivers and tributaries at elevations from 2325-8200 ft amsl. They prefer moderate to swift current velocity and gravel or cobble substrates, with an open, low growing riparian community composed mostly of grasses and shrubs. This speciesí range has been dramatically reduced and fragmented because of habitat destruction, and competition and predation by introduced fish species.

**Spikedace (*Meda fulgida*)**
Historically, this **threatened** species was common and locally abundant throughout the Upper Gila River basin of Arizona and New Mexico. In Arizona, this included the Agua Fria, San Pedro, and San Francisco River systems, and the Gila, Salt and Verde Rivers and major tributaries upstream of present-day Phoenix. Presently, these fish are restricted to Aravaipa Creek (Graham and Pinal Counties), Eagle Creek (Greenlee County), and the upper Verde River (Yavapai County) in Arizona, and the upper Gila River system in New Mexico. **Critical habitat** was designated in April 2000, and in addition to occupied habitat, it includes habitat in the Arizona counties of Apache, Cochise, Gila, and Pima, which presently contain no known populations of spikedace. The spikedace occurs at elevations from 1600-4500 ft amsl, occupying midwater habitats of runs, pools, and swirling eddies of moderate to large perennial streams, with gravel cobble substrates and moderate to swift velocities over sand and gravel substrates.

**Yaqui catfish (*Ictalurus pricei*)**
This **threatened** species historically occurred in San Bernardino Creek as far up as San Bernardino Ranch, Arizona. In Arizona, the species is now restricted to a small population (~350 fish) re-introduced in November 1997 into the Rio Yaqui on the northern portion of the San Bernardino NWR (3730-3780 ft amsl), in Cochise County. **Critical habitat** was designated on all aquatic habitats of the main portion of this NWR. The San Bernardino NWR is down-slope from a small area (1 square mile) of BLM-administered lands located in the upper part of the drainage approximately 7 miles east of the refuge. Habitat for this species includes ponds or streams, and moderate to large rivers, with medium to slow current over sand and rock bottoms; it prefers quiet clear pools. When streams flow intermittently in the dry season, the catfish seeks refuge in permanent, often spring-fed pools.

**Gila chub (*Gila intermedia*)**
This species is **proposed** for listing by the USFWS. The largest remaining U.S. populations are in southeastern Arizona. Gila chub are found in pools, springs, cienegas and streams (2700-5400 ft amsl) on BLM-administered lands, as well as multiple private lands (*e.g.*, The Nature Conservancy, Audubon Society, and others), in the central and southeastern counties of Arizona. **Proposed critical habitat** for this fish occurs in Cochise, Gila, Graham, Greenlee, Pima, Pinal, Santa Cruz, and Yavapai Counties, AZ. This species is also found in Sonora, Mexico.

**FLOWERING PLANTS**

The Federally listed, proposed, and candidate plants for BLM-administered lands in Arizona totals 12 species. The list is dominated by seven cactus species (Cactaceae family). All of these plants are also protected from collection under the Arizona Native Plant Law as Highly Safeguarded species. Many of these species are desert species growing on very special substrates. From a distributional perspective, the group is focused in northern Arizona and along the deserts of the southwest part of the state.

**Arizona Cliffrose (*Purshia subintegra*) Rosaceae**
This **endangered** shrub species is endemic to Arizona. It is found in Graham, Maricopa, Mohave, and Yavapai Counties, AZ, at elevations ranging from 2120-4000 ft amsl. Its habitat is characteristically white soils derived from tertiary limestone lakebed deposits within Sonoran Desert Scrub communities. Threats to this species include a low number of populations, poor recruitment rates, herbivory from livestock and burros, and off-highway vehicle use.

**Brady Pincushion Cactus (*Pediocactus bradyi*) Cactaceae**
The Brady pincushion cactus is listed as **endangered** and occurs only in Coconino County, AZ. It occupies bench and terrace habitats in Great Basin Desert Scrub near Marble Gorge. Substrate is Kaibab limestone chips over Moenkopi shale and sandstone soil. Threats to viability include small and localized populations, illegal collecting, livestock grazing, highway maintenance, off-road vehicles, and other recreation.

**Holmgren Milkvetch (*Astragalus holmgrenorium*) Fabaceae**
The **endangered** Holmgren milkvetch is found only in Mohave County, Arizona on Arizona State Lands, at elevations ranging from 2700 ft to 2800 ft amsl. Just under limestone ridges and along draws in gravelly clay hills. Two additional populations are known near St. George, Utah. This species is also known as Paradox milkvetch.

**Huachuca Water Umbel (*Lilaeopsis schaffneriana* ssp. *recurva*) Apiaceae**
This parsley family species is listed as **endangered** and occurs in disjunct populations in Cochise, Pima, and Santa Cruz Counties, AZ. It also occurs in adjacent Sonora, Mexico, west of the continental divide. Populations are on Fort Huachuca Military Reservation. **Critical habitat** is designated in Cochise and Santa Cruz counties (64 FR 37441, July 12, 1999). It is typically found at elevations of 4000-6500 ft amsl, although it may be found as low as 2000 ft amsl. It occupies habitat in cienegas, perennial low gradient streams, and wetlands. Threats to this species include watershed degradation from livestock trampling, diversion of water, dewatering of its habitat, and flash floods.

**Kearneyís Blue Star (*Amsonia kearneyana*) Apocynaceae**
Kearneyís blue star is Federally **endangered**. It occurs in Pima County, AZ, at elevations of 3600-6400 ft amsl. Its habitat includes west-facing drainages in the Baboquivari Mountains. Plants grow in stable, partially shaded, coarse alluvium along a dry wash.

**Nichol Turk's Head Cactus (*Echinocactus horizonthalonius* var. *nicholii*) Cactaceae**
This cactus species is Federally **endangered**. It is an isolated subspecies in Arizona and probably Sonora, Mexico of the widespread Chihuahuan *E. horizonthalonius* Lemair. It is found at elevations of 2000-3600 ft amsl in Pima and Pinal Counties, AZ. It is a very slow-growing plant. Its habitat features unshaded microsites in Sonoran Desert Scrub, on dissected alluvial fans at the foot of limestone mountains, and on inclined terraces and saddles on limestone mountainsides.

**Peebles Navajo Cactus *(Pediocactus peeblesianus* var. *peeblesianus*) Cactaceae**
The Peebles Navajo cactus carries a listing of Federally **endangered**. It occurs only in Navajo County, AZ. Its elevation range is 5100-5650 ft amsl. The habitat for this cactus includes the gravelly soils of the Shinarump conglomerate of the Chinle Formation. Gravel quarrying has destroyed as much as one-fourth of the potential habitat in the area. There are only 1000 individuals left in the wild, and these are sought by collectors and threatened by off-road vehicles, urban development, and continued gravel pit operations.

**Pima Pineapple Cactus (*Coryphantha scheeri* var. *robustispina*) Cactaceae**
This Federally **endangered** cactus species occurs in Pima and Santa Cruz Counties, AZ, at elevations ranging from 2300-4000 ft amsl. Habitat for this species includes Sonoran Desert Scrub or Semi-desert Grassland communities. It cccurs in alluvial valleys or on hillsides in rocky to sandy or silty soils. Loss of habitat is based on urban development, off-road vehicle use, road construction, agriculture, and mining. Illegal collecting is also a threat to this species.

**Jones cycladenia (*Cycladenia humilis var. jonesii*) Apocynaceae**
The Jones cycladenia is Federally **threatened**. It occurs in Mohave County, AZ, at elevations from 4390 ft to 6000 ft amsl. Its habitat includes Mixed Desert Scrub, juniper, or wild buckwheat-mormon tea plant communities. It is found on gypsiferous, saline soils of the Cutler, Summerville, Moenkopi, and Chinle formations. It is also found in Emery, Garfield, and Grand Counties, Utah. Populations of this species are threatened by impacts from mineral and oil and gas exploration, and habitat damage from off-road vehicles. This species has very exacting soil requirements and low fruit set.

**Siler Pincushion Cactus (*Pediocactus sileri*) Cactaceae**
The Siler pincushion cactus has a Federal listing of **threatened**. It occurs in Coconino and Mohave Counties, AZ, at elevations ranging from 2800-5400 ft amsl. Its habitat includes Desert Scrub transitional areas. This cactus grows on gypsiferous clay and sandy soils of the Moenkopi formation.
**Acuna cactus (*Echinomastus erectocentrus var. acunensis*) Cactaceae**
This cactus is a **candidate** for Federal listing, known to occur in Pima and Pinal Counties, AZ, at elevations ranging from 1300-2600 ft amsl. It typically occurs on well-drained knolls and gravel ridges in Sonoran Desert Scrub communities. The Organ Pipe Cactus National Monument population is stable; however others are at risk from illegal collecting.

**Fickeisen Plains Cactus (*Pediocactus peeblesianus var. fickeiseniae*) Cactaceae**
This federal **candidate** cactus species is an Arizona endemic found in Coconino and Mohave Counties at elevations of 4000-5450 ft amsl. Its habitat includes exposed layers of Kaibab limestone on canyon margins, or hills of Great Basin Desert Scrub. Threats to this species variety include illegal collection, trampling by livestock, off-road vehicle use, insect and rodent predation, road construction and maintenance, and mining.

**MAMMALS**

Federally listed and candidate mammals in Arizona totals 8 species. Several of these species were extirpated from the state, and have recovery programs that are currently reintroducing populations or have plans to re-establish populations by natural migration or reintroductions in the future (10-20 years). Habitats on BLM-administered lands either currently or are expected to play an important role in these recovery programs.

**Black-footed ferret (*Mustela nigripes*)**
No wild populations of this **endangered** species currently exist in Arizona. One reintroduced population has been established in the Aubrey Valley on tribal lands in northwestern Arizona, designated as an **experiment/non-essential** site under the Endangered Species Act (Section 10(j)). Black-footed ferrets require established prairie dog towns for food and shelter, which often occur in Plains Grassland and Great Basin Grassland. In Arizona, the historical range probably coincided with that of the Gunnison's prairie dog (*Cynomys gunnisoni*) north of the Mogollon Rim but south of the Colorado River, and possibly that of the black-tailed prairie dog (*C. ludovicianus*) below the Rim in Graham and Cochise counties. A recent survey of Gunnisonís prairie dog towns in Arizona resulted in no new potential sites for black-footed ferret reintroductions. However, the Arizona Game and Fish Department continues to pursue ferret reintroductions, and BLM-administered lands may provide suitable sites within the next 15-20 years.

**Hualapai Mexican vole (*Microtus mexicanus hualpaiensis*)**
This **endangered** species is confirmed only in the Hualapai Mountain Range and possibly in the Prospect Valley and Music Mountains, in Mohave, Coconino, and Yavapai Counties, AZ, at elevations between 2000-7000 ft amsl. Ongoing research may verify the species in additional locations. These voles inhabit

grass/forb habitats in ponderosa pine, typically near water. They are also found in pinyon-juniper and pine-oak associations with a variety of shrubs and grasses.

**Jaguar (*Panthera onca*)**
No breeding populations of this **endangered** species are known to exist in the United States. Individuals occur in the Southwest as occasional wanderers from Mexico. The historical range of the jaguar included the mountainous regions of eastern Arizona (Cochise, Santa Cruz, and Pima Counties), southwestern New Mexico and northeastern Sonora, Mexico. The jaguar likely occurred as a resident species only in southeastern Arizona although historic records extend north to the Grand Canyon. In Arizona, jaguars have been sighted in a variety of ecological communities, from Sonoran desert scrub through subalpine conifer forest (1600->9800 ft amsl). Jaguars have shown an affinity towards areas with dense plant cover, an abundance of prey, and the presence of water. Most records are from Madrean evergreen-woodland, shrub-invaded semi-desert grassland, and along rivers, which were likely used as travel corridors. BLM-administered lands may play a role in the recovery of this species.

**Lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*)**
This **endangered** species is migratory, present in southern Arizona (Cochise, Gila, Graham, Pima, Pinal, Maricopa, and Santa Cruz Counties) usually from April to September. These bats inhabit Desert or Semidesert Grassland and desert shrub (PaloVerde/Saguaro) up to Oak Woodland transition habitats (1200-7300 ft amsl). They forage mainly on agave and columnar cacti blooms in paloverde-mixed cacti vegetation. The bats typically day-roost in caves and abandoned tunnels. In April, pregnant females congregate at traditional maternity roost sites; males and perhaps nonpregnant females arrive in July. By late September or October, the bats migrate south to unknown locations in Mexico for the winter. Significant population declines are thought to be associated with reduced numbers and size of maternity colonies in Arizona and Sonora due to exclusion and disturbance.

**Mexican gray wolf (*Canis lupus baileyi*)**
This **endangered** species has been reintroduced as an **experimental/nonessential** population (Endangered Species Act, Section 10(j)) in the Blue Primitive Area of Greenlee, Apache, and Coconino Counties, Arizona. Unconfirmed sightings of individuals have been reported in the southern part of the state (Cochise, Pima, and Santa Cruz Counties). Its historic range included eastern and central Arizona, the Mogollon Plateau, southern New Mexico, western and central Texas and the Sierra Madre Occidental area of western Mexico. Habitat types are primarily chapparal, pine-oak woodlands, pinyon-juniper forests, riparian areas, and grasslands above 4000 ft amsl. Individuals may also cross desert areas.

**Ocelot (*Leopardus* [=*Felis*] *pardalis*)**
This **endangered** species is considered extirpated from Arizona, although unconfirmed reports of individuals in the southern part of the state (Cochise, Pima, Santa Cruz Counties) continue to be received. It occurs at elevations <8000 ft amsl, typically occupying humid tropical and subtropical forests, savannahs, and semi-arid thornscrub. It may persist in partly-cleared forests, second-growth woodland, and abandoned cultivation reverted to brush. A primary habitat component is the presence of dense cover. Recovery programs for the ocelot include evaluating potential habitat for reintroductions over the next 10-15 years in southern Arizona (*e.g.*, San Pedro area), which may include BLM-administered lands.

**Sonoran pronghorn (*Antilocapra americana sonoriensis*)**
Historically, this **endangered** desert subspecies of antelope inhabited southwest Arizona and the northern part of Sonora, Mexico, but its population has been reduced to two small groups (estimated 150 individuals in Arizona; 250 in Mexico). The Arizona population survives in the arid flatlands of the Barry M. Goldwater Range, Organ Pipe Cactus National Monument, and Cabeza Prieta National Wildlife Refuge, with occasional sightings on Bureau of Land Management lands (Pima, Maricopa, and Yuma Counties). Within the Sonoran desert, these antelope are found in broad, alluvial valleys, with creosote-bursage and paloverde-mixed cacti associations, separated by granite mountains and mesas, at elevations from 340-2000 ft amsl. Vegetation is scarce throughout most of its habitat due to little and sporadic rainfall.

**Black-tailed prairie dog (*Cynomys ludovicianus*)**
This **candidate** species is currently extirpated from Arizona. Historically, this species was found in Pima, Cochise, and Graham Counties, AZ, inhabiting burrows in plains and grassland habitats at elevations from 3000-5500 ft amsl. These prairie dogs occur 5 miles south of the Arizona border in Mexico and have been reintroduced in southwestern New Mexico. With the current conservation efforts for this species, black-tailed prairie dogs may re-establish in Arizona in the next 10-15 years, either naturally or through reintroductions. BLM-administered lands may play a role in the speciesí recovery.

**REPTILES**

Two reptile species in Arizona are Federally listed as threatened. The Mohave population of the desert tortoise, which occurs north and west of the Colorado River, is actively managed by the Arizona Strip, Lake Havasu, and Yuma Field Offices. BLM has also participated in studies on the effects of wildfire on tortoises and their habitat. The New Mexico ridgenose rattlesnake has only a few reported sites in eastern Arizona.

**Desert tortoise, Mohave population (*Gopherus agassizii*)**
The Mohave population of the desert tortoise is listed as **threatened**, and includes all tortoises north and west of the Colorado River. In Arizona, this includes Mohave County north of the river, west of the Beaver Dam Mountains, north of the Virgin Mountains, and in the Pakoon Basin (Arizona Strip Field Office). In California, this includes lands in the western-most portions of San Bernardino, Riverside, and Imperial Counties, within the management areas of the Lake Havasu and Yuma Field Offices. These tortoises are still found throughout their range, but populations are fragmented and declining. BLM has classified desert tortoise habitat into three categories based on habitat quality, tortoise population densities, and management potential for tortoises. Habitat for the Mohave population includes sandy loam to rocky soils in valleys, bajadas, and hills in Mohave desert scrub and the Lower Colorado River Valley subdivision of the Sonoran Desert, with elevations ranging from 500-5100 ft amsl. The Mohave population occurs in plant communities dominated by creosotebush and other sclerophyll shrubs with small cacti and, in some areas, abundant Joshua trees.

**New Mexico ridgenose rattlesnake (*Crotalus willardi obscurus*)**
This **threatened** snake species has been documented on USFS lands in the Peloncillo Mountains (Cochise County, AZ), with only three known records in Arizona. It primarily inhabits canyon bottoms in pine-oak communities at elevations of 5000-6600 ft amsl.

**CONSERVATION AGREEMENT AND MANAGEMENT PLAN SPECIES**

Four species were formerly considered Category 2 candidate species for listing by the USFWS, but a change in regulations removed their Federal status. They include two reptile (lizard, tortoise), one cactus, and one fish species. These are currently considered Federal species of concern, and BLM participates in Conservation Agreements (3 species) and Management Plans (1 species) to manage these priority species.

**Flat-tailed horned lizard (*Phrynosoma mcallii*)**
The Conservation Agreement for this species was finalized in May 1997. This species of concern is found in Yuma County, Arizona, and in central Riverside County and Imperial County, California, within the management area of the BLM Yuma Field Office. This species inhabits sandy flats, dune-fringe areas, or areas with deposits of fine, windblown sand, at elevations less than 540 ft amsl. The creosote-white bursage series of the Sonoran Desert dominates these sites.

**Paradine (Kaibab) plains cactus (*Pediocactus paradinei*)**
The Conservation Agreement for this species was signed in February 1998. This species of concern is found in Coconino County, Arizona, within the management area of the BLM Arizona Strip Field Office. This cactus species occupies sites in pinyon-juniper woodland and shrub/grassland at elevations of 5000-7200 ft amsl.

**Virgin spinedace (*Lepidomeda mollispinis mollispinis*)**
The Conservation Agreement for this species was finalized in 1995. This species of concern is limited to the tributaries and the mainstem of the Virgin River at the mouth of tributaries. In Arizona, it occurs in Mohave County, within the management area of the BLM St. George Field Office. This fish species occupies clear, cool, relatively swift streams with scattered pools at elevations of about 1800 ft amsl. It is also found in Washington County, Utah and Clarke County, Nevada.

**Desert tortoise, Sonoran population (*Gopherus agassizii*)**
All Arizona BLM Field Offices manage the Sonoran population of the desert tortoise on public lands under the *Management Plan for the Sonoran Desert Population of the Desert Tortoise in Arizona* (Arizona Interagency Tortoise Team), finalized in December 1996. The Sonoran population includes those tortoises south and east of the Colorado River, including Cochise, Gila, Graham, La Paz, Maricopa, Mohave, Pima, Pinal, Santa Cruz, and Yavapai Counties, Arizona. BLM has classified desert tortoise habitat into three categories based on habitat quality, tortoise population densities, and management potential for tortoises. The Sonoran population occurs primarily on rocky slopes and bajadas of Mohave and Sonoran desert scrub, at elevations ranging from 508-5250 ft amsl. Habitats include a variety of biotic communities within the Upland and Lower Colorado River Valley subdivisions of the Sonoran Desert, but are most often paloverde-mixed cacti associations, as well as ecotonal areas consisting of Sonoran desertscub with elements of Mohave desert scrub, desert grassland, interior chaparral, and juniper woodland. Caliche caves in incised, cut banks of washes (arroyos) are also used for shelter sites, especially in the Lower Colorado River Valley subdivision.